

IN THE CLAIMS:

No claims have been amended herein. A complete listing of the currently pending claims follows.

1. (Previously Presented) A magnetic guiding apparatus for guiding a moving member along a length of a sliding member by attracting a target disposed along the length of the sliding member by electromagnets provided on the moving member, said apparatus comprising:

a plurality of magnetic-flux detection means, on the guided moving member, for detecting a magnetic flux along the length of the target during movement of the moving member along the length of the sliding member;

position measuring means for measuring a position of said plurality of magnetic-flux detection means on the guided moving member along the length of the sliding member;

detection means for detecting a position of the magnetic flux peak along the length of the target, based on output of said plurality of magnetic-flux detection means and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.

2. (Previously Presented) A magnetic guiding apparatus according to claim 1, further comprising storing means for storing the magnetic flux in the target corresponding to the position measured by said position measuring means.

3. (Original) A magnetic guiding apparatus according to claim 1, wherein said magnetic-flux detection means is mounted on the moving member.

4. (Previously Presented) A magnetic guiding apparatus according to claim 3, wherein demagnetization is performed by moving the electromagnets to the position of the magnetic flux and providing the electromagnets with a current signal by said demagnetization means.

5. (Original) A magnetic guiding apparatus according to claim 1, wherein at least one of the electromagnets is used as said magnetic-flux detection means.

6. (Original) A stage apparatus comprising:

a magnetic guiding apparatus according to claim 1.

7. (Previously Presented) An exposure apparatus for positioning at least one of a substrate and an original by using a stage apparatus according to claim 6.

8. (Original) A device manufacturing method comprising:

a step of manufacturing devices by an exposure apparatus according to claim 7.

9. (Previously Presented) A stage apparatus comprising:

a target having a length extending along a direction;

a moving member guided by said target and movable along the length of said target;

electromagnets provided on said moving member and producing a force between said target and said electromagnets;

a plurality of magnetic flux detection means provided on the moving member for detecting a magnetic flux during movement of the moving member along the length of said target;

position measuring means for measuring a position of the magnetic flux detecting means on said moving member along the length of the target; and

detection means for detecting a position of the magnetic flux peak along the length of the target, based on output of said plurality of magnetic-flux detection means and said position measuring means.

10. (Previously Presented) A stage apparatus according to claim 9, further comprising demagnetization means for reducing the magnetic flux at the detected position of the magnetic flux peak.

11. (Original) A stage apparatus according to claim 10, further comprising a servo positioning system for positioning said moving member, wherein said servo positioning system is off during a reduction in the magnetic flux.

12. (Previously Presented) A demagnetization method for performing demagnetization of a magnetic guide apparatus, which has a moving member along a length of a target, said method comprising the steps of:

detecting a magnetic flux along the length of the target by a plurality of magnetic flux detecting means on the moving member during movement of the moving member along the length of the target;

measuring position of the plurality of magnetic flux detecting means along the length of the target;

detecting a position of magnetic flux peak along the length of the target based on measured position and detected magnetic flux; and

performing demagnetization at the detected position of the magnetic flux peak.

13. (Previously Presented) A magnetic guiding apparatus for guiding a moving member along a length of a beam by attracting a target disposed along the length of the beam by electromagnets provided on the moving member, said apparatus comprising:

a plurality magnetic-flux detectors, on the guided moving member, configured to detect a magnetic flux along the length of the target during movement of the moving member along the length of the target;

a position measuring unit configured to measure a position of said plurality of magnetic-flux detectors along the length of the target;

detection means for detecting a position of a magnetic flux peak along the length of the target, based on output of said plurality of magnetic-flux detectors and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.